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$\mathcal{L}$	We Claim:  1. A method for amplifying at least a first and second diversity-encoded signal, each
CH	we Claim.
) 1	1. A method for amplifying at least a first and second diversity-encoded signal, each
2	of which represents information represented by a first signal to be transmitted using transmit
3	diversity, and for amplifying a second signal to be transmitted without using transmit diversity,
4	the method comprising the steps of:
5	sharing the amplification of the at least first and second diversity-encoded signals
6	between at least two amplifiers; and
7	sharing the amplification of the second signal between the at least two amplifiers.
1	2. The method of claim 1, wherein the first and second sharing steps are carried out

- 2. The method of claim 1, wherein the first and second sharing steps are carried out concurrently.
  - 3. The method of claim 1,

further comprising the step of forming at least first and second composite signals as functions of the at least first and second diversity-encoded signals; and

wherein the first of the sharing steps comprises the steps of:

amplifying the first composite signal in a first amplifier of the at least two amplifiers; and

amplifying the second composite signal in a second amplifier of the at least two amplifiers.

- 4. The method of claim 3,
- further comprising the step of forming the at least first and second composite signals as functions of the second signal; and
- wherein the second of the sharing steps comprises the steps of:
- amplifying the first composite signal in a first amplifier of the at least two amplifiers; and
- amplifying the second composite signal in a second amplifier of the at least two amplifiers.

1	5. T	he method of claim 3, wherein the step of forming the at least first and second	
2	composite signal	s is performed in the digital domain.	
1	6. T	he method of claim 5,	
2	further co	omprising the steps of:	
3	pı	re-distorting the first composite signal; and	
4	pı	re-distorting the second composite signal; and	
5	wherein	the steps of amplifying the first and second composite signals comprise	
6	amplifying the p	re-distorted first and second composite signals.	
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1	7. T	he method of claim 1,	
2	further c	omprising the step of forming at least first and second composite signals as	
3	functions of the second signal; and		
4	wherein t	he second of the sharing steps comprises the steps of:	
5	aı	mplifying the first composite signal in a first amplifier of the at least two	
6	amplifiers; and		
7	aı	mplifying the second composite signal in a second amplifier of the at least two	
8	amplifiers.		
1	8. A	method for processing at least a first diversity-encoded signal and a second	
2	diversity-encode	d signal each of which represents information represented by a first signal, the	
3	method comprising the steps of:		
4	forming at least first and second composite signals as functions of the at least first an		
5	second diversity-encoded signals;		
6	amplifying the first composite signal in a first amplifier to produce an amplified first		
7	composite signal;		
8	amplifying the second composite signal in a second amplifier to produce an amplified		
9	second composite signal; and		

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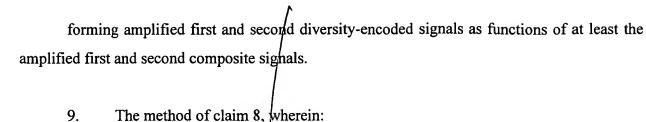
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The method of claim 8, wherein:

the amplified first diversity-encoded signal comprises an amplified phase-shifted first diversity-encoded signal; and

the amplified second diversity-encoded signal comprises an amplified phase-shifted second diversity-encoded signal.

10. The method of claim 8, wherein:

the first composite signal is a function of a combination of the first diversity-encoded signal with a phase-shifted version of the second diversity-encoded signal; and

the second composite signal is a function of a combination of the second diversityencoded signal with a phase-shifted version of the first diversity-encoded signal.

The method of claim 8, wherein: 11.

the amplified first diversity-encoded signal is a function of a combination of the amplified first composite signal with a phase-shifted version of the amplified second composite signal; and

the amplified second diversity-encoded signal is a function of a combination of the amplified second composite signal with a phase-shifted version of the amplified first composite signal.

The method of claim 8, wherein: 12.

the first composite signal is a function of a sum of the first diversity-encoded signal and of the second diversity-encoded signal; and

the second composite signal is a function of a difference between the first diversityencoded signal and the second diversity-encoded signal.

The method of claim 8, wherein: 13.

2	the amplified first diversity-encoded signal is a function of a sum of the amplified first		
3	composite signal and the amplified second composite signal; and		
4	the amplified second diversity-encoded signal is a function of a difference of the		
5	amplified first composite signal and the amplified second composite signal.		
1	14. The method of claim 8, further comprising the steps of:		
2	transmitting the amplified first diversity-encoded signal over a first antenna; and		
3	transmitting the amplified second diversity-encoded signal over a second antenna.		
1	15. The method of claim 8, further comprising the steps of:		
2	forming the at least first and second composite signals as functions of a second signal;		
3	and		
4	forming an amplified second signal as a function of at least the amplified first and second		
5	composite signals.		
1	16. The method of claim 8, wherein the step of forming the at least first and second		
2	composite signals is performed in the digital domain.		
1	17. The method of claim 16,		
2	further comprising the steps of:		
3	pre-distorting the first composite signal; and		
4	pre-distorting the second composite signal; and		
5	wherein the steps of amplifying the first and second composite signals comprise		
6	amplifying the pre-distorted first and second composite signals.		
1	18. A transmitter comprising:		
2	a first device for forming at least a first and second composite signals as functions of at		
3	least first and second diversity-encoded signals, the first and second diversity-encoded signal		
4	representing information represented by a first signal;		

second composite signal;

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5	a first amplifier having an input coupled to the first device, the amplifier amplifying the	
6	first composite signals to produce an amplified first composite signal;	
7	a second amplifier having an input coupled to the first device, the amplifier amplifying	
8	the second composite signal to produce an amplified second composite signal; and	
9	a second device having a first input coupled to an output of the first amplifier and having	
10	a second input coupled to an output of the second amplifier, the second device for forming	
11	amplified first and second diversity-encoded signals as functions of at least the amplified first	
12	and second composite signals.	
1	19. The transmitter of claim 18, wherein the first device comprises:	
2	channel processing circuitry and	
3	at least one radio for forming the first and second composite signals.	
1	20. The transmitter of claim 18, wherein	
2	the first device comprises:	
3	channel processing circuitry;	
4	at least one radio; and	
5	a first hybrid combiner having an input coupled to an output of the radio, a first	
6	output coupled to the first amplifier, and a second output coupled to the second amplifier, the	
7	first hybrid combiner forming the first and second composite signals; and	
8	the second device comprises a second hybrid combiner having a first input coupled to the	
9	first amplifier, and a second input coupled to the second amplifier.	
1	21. The transmitter of claim 20, wherein the first and second hybrid combiners	
2	comprise 90° hybrid combiners.	
1	22. The transmitter of claim 18, wherein:	
2	the first device further comprises a digital predistorter having an output coupled to the	
3	first and second amplifiers, the digital predistorter pre-distorts the first composite signal and the	

5	the first amplifier amplifies the pre-distorted first composite signal to produce the
6	amplified first composite signal; and
7	the second amplifier amplifies the pre-distorted second composite signal to produce the
8	amplified second composite signal.
1	23. The transmitter of claim 18, wherein:
2	the amplified first diversity-encoded signal comprises an amplified phase-shifted first
3	diversity-encoded signal; and
4	the amplified second diversity-encoded signal comprises an amplified phase-shifted
5	second diversity-encoded signal.
1	24. An apparatus comprising:
2	at least one antenna; and
3	a transmitter coupled to at least one of the at least one antennas, the transmitter
4	comprising:
5	a first device for forming at least a first and second composite signals as functions
6	of at least first and second diversity-encoded signals, the first and second diversity-encoded
7	signal representing information represented by a first signal;
8	a first amplifier having an input coupled to the first device, the amplifier
9	amplifying the first composite signals to produce an amplified first composite signal;
10	a second amplifier having an input coupled to the first device, the amplifier
11	amplifying the second composite signal to produce an amplified second composite signal; and
12	a second device having a first input coupled to an output of the first amplifier and
13	having a second input coupled to an output of the second amplifier, the second device for
14	forming amplified first and second diversity-encoded signals as functions of at least the
15	amplified first and second composite signals.
1	25. The apparatus of claim 24, wherein the first device comprises:
2	channel processing circuitry; and
3	at least one radio for forming the first and second composite signals

1	26.	The apparatus of claim 24, wherein
2	the first device comprises:	
3		channel processing circuitry;
4		at least one radio; and
5		a first hybrid combiner having an input coupled to an output the radio, a first
6	output coupled	to the first amplifier, and a second output coupled to the second amplifier, the
7	first hybrid cor	nbiner forming the first and second composite signals; and
8	the seco	and device comprises a second hybrid combiner having a first input coupled to the
9	first amplifier,	and a second input coupled to the second amplifier.
1	27.	The apparatus of claim 26, wherein the first and second hybrid combiners
2	comprise 90° h	ybrid combiners.
1	28.	The apparatus of claim 24, wherein:
2	the firs	t device further comprises a digital predistorter having an output coupled to the
3	first and secon	d amplifiers, the digital predistorter pre-distorts the first composite signal and the
4	second compos	site signal;
5	the firs	st amplifier amplifies the pre-distorted first composite signal to produce the
6	amplified first	composite signal; and
7	the seco	ond amplifier amplifies the pre-distorted second composite signal to produce the
8	amplified secon	nd composite signal.
1	29.	The apparatus of claim 24, wherein:
2	the am	plified first diversity-encoded signal comprises an amplified phase-shifted first
3	diversity-encod	ded signal; and
4	the am	plified second diversity-encoded signal comprises an amplified phase-shifted
5	second diversit	y-encoded signal.
1	30.	The apparatus of claim 24, wherein the apparatus includes at least two antennas
2	and the transm	itter is coupled to at least two of the antennas.

1 31. The apparatus of claim 24, wherein the apparatus further comprises a receiver coupled to at least one of the antennas.